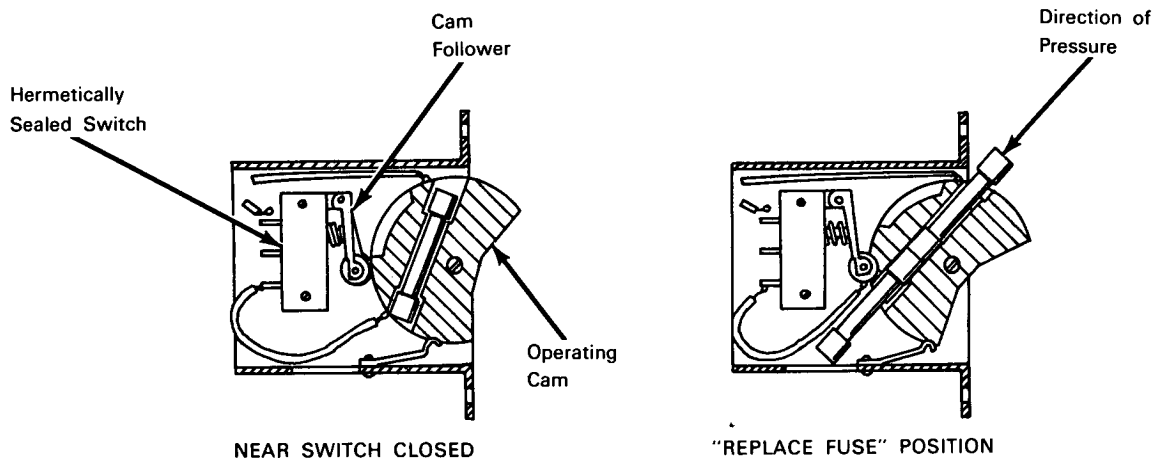


# NASA TECH BRIEF



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## Cam-Operated Limit Switch Features Safe Fuse Replacement



**The problem:** To design a multiple-limit, fused switching arrangement that is easily operated and permits fuse replacement without danger of a spark or arcing.

**The solution:** Two hermetically sealed, short travel, limit switches (only one is visible in the figure) wired in parallel circuits and actuated by manually operated cams containing the circuit fuses. By moving the cams to a certain position, the fuses are open circuited and positioned for quick, safe replacement. The cams can be fitted with fuses of different current capacity so that different load conditions may be met by simply switching one in and the other out.

**How it's done:** A pair of manually positioned cams, mounted on a common axis, operates the switches. In the off position, both of the parallel circuits are opened. In a second position, one of the parallel circuits containing a fuse of given rating is closed and the other circuit is open. In a third position, the previous situation is reversed so that a fuse of

different rating is in the circuit. A fourth position, called the "replace fuse" position opens both parallel circuits and positions both fuses so that they can be quickly and safely replaced by inserting new fuses that force the old fuses out of the cam blocks.

### Notes:

1. This switching device, because of its simple design, could readily be mass produced.
2. This invention would be useful in paint spray booths, cracking plants, explosives factories, or any place involved with the switching of electrical power in an explosive or combustible environment.

**Patent status:** Title to this invention, covered by U.S. Patent No. 3,123,692, has been waived under the provisions of the National Aeronautics and Space Act (42 U.S.C. 2457 (f)) to the McDonnell Aircraft Corporation, Box 516, St. Louis, Missouri, 63166.

Source: George J. Weber of the McDonnell Aircraft Corporation under contract to Manned Spacecraft Center (MSC-218)

Category 01